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(ACTION CH 024)

## PATENT COOPERATION TREATY

DIREZ. PROPRIETÀ INDUSTRIALE

NO. 23 MAR. 2005

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

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PCT

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing  
(day/month/year)

02.03.2005

Applicant's or agent's file reference  
1682HMG

## IMPORTANT NOTIFICATION

International application No.  
PCT/IT 03/00843International filing date (day/month/year)  
19.12.2003Priority date (day/month/year)  
19.12.2002Applicant  
OLIVETTI I-JET S.P.A. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international  
preliminary examining authority:European Patent Office  
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# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>1682HMG</b>	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA416)	
International application No. <b>PCT/IT 03/00843</b>	International filing date ( <i>day/month/year</i> ) <b>19.12.2003</b>	Priority date ( <i>day/month/year</i> ) <b>19.12.2002</b>
International Patent Classification (IPC) or both national classification and IPC <b>B41J2/14</b>		
Applicant <b>OLIVETTI I-JET S.P.A. et al.</b>		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 6 sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li>I <input checked="" type="checkbox"/> Basis of the opinion</li> <li>II <input type="checkbox"/> Priority</li> <li>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li>IV <input type="checkbox"/> Lack of unity of invention</li> <li>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li>VI <input type="checkbox"/> Certain documents cited</li> <li>VII <input type="checkbox"/> Certain defects in the international application</li> <li>VIII <input type="checkbox"/> Certain observations on the international application</li> </ul>		
Date of submission of the demand  <b>15.07.2004</b>	Date of completion of this report  <b>02.03.2005</b>	
Name and mailing address of the International preliminary examining authority:  <div style="display: flex; align-items: center;"> <div>             European Patent Office              D-80298 Munich              Tel. +49 89 2399 - 0 Tx: 523656 epmu d              Fax: +49 89 2399 - 4465           </div> </div>	Authorized Officer  <b>Bridge, S</b>  Telephone No. +49 89 2399-2837	



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/AT 03/00843

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-3, 5, 7-9 as originally filed  
4, 6 received on 14.01.2005 with letter of 10.01.2005

**Claims, Numbers**

1-10 received on 14.01.2005 with letter of 10.01.2005

**Drawings, Sheets**

1/5-4/5 as originally filed  
5/5 received on 14.01.2005 with letter of 10.01.2005

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item..

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/IT 03/00843**

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-10
	No: Claims	
Inventive step (IS)	Yes: Claims	1-10
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations

**see separate sheet**

**V Statement according to Article 35(2) PCT – Novelty, inventive step & industrial applicability**

**Closest prior art :** D1 = US-A-6 423 241 discloses a process for protectively coating an ejection chamber (504) of an ink jet printhead, to reduce damaging effects of aggressive inks, comprising the following steps:

- step a): disposing of a die comprising a silicon substrate (501) covered by a plurality of metallic and dielectric layers (506,505,601) in which is made an array of microcircuits for driving of thermal elements (506) for ejection of said ink, and also comprising a sacrificial layer (701,702,703), provided with a cast (703) for at least one ejection nozzle (507), said sacrificial layer (701,702,703) and said cast (703) defining the inner shape of a chamber (504), of a feeding duct (503) connected to it and of said at least one nozzle (507);
- step d): depositing a structural layer (704) so as to completely cover said sacrificial layer (701,702)
- step f): removing said sacrificial layer (701,702) and said cast (703) by means of a chemical etching.

A protective coating ("anti-corrosion plating") is applied after step (f), ie after the sacrificial layer has been removed to form the ink chamber(s).

**Solution :** According to "hydraulic microcircuits" method claim 9 and corresponding ink jet chamber method claim 1 :

- step a): add a metallic sacrificial layer defining as a solid what will become the hollow hydraulic (ink) passages and chambers to an electric circuit carrying silicon substrate
- step b): add a protective coating on the sacrificial layer
- step c): add an adhesion layer on the protective coating
- step d): add a resin "structural" layer (ie the walls enclosing the future ink channels and chambers)
- step e): polymerize the structural layer;
- step f): remove the sacrificial layer with an acid bath (and thereby form the hollow hydraulic passages and chambers),

**Effect :** the resulting hydraulic microcircuit / printhead has improved resistance to corrosive liquids.

**Objective problem :** improve resistance to corrosive liquids.

Such a solution is neither disclosed nor suggested in any of the available prior art.

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/IT 03/00843

Therefore, the subject matter of the independent claims satisfies the criteria set forth in Articles 33(2)-33(4) PCT.

The dependent claims 2-8, 10 concern further technical details of the invention and are carried by the inventive idea of the independent claims. Therefore, the dependent claims also satisfy the criteria set forth in Articles 33(2)-33(4) PCT.